**Cracking**

**1.** Dodecane, C12H26, can be reacted in to form ethene and octane.

(i) State one condition that is needed.

(ii) Complete the following balanced symbol equation for the reaction of dodecane.

C12H26 →

**2.** Cracking is a process used to break down the long-chain alkanes found in crude oil, into smaller molecules.

(a) Complete a balanced symbol equation to show how the long-chain alkane decane, C10H22, breaks down to form pentane, ethene, and propene.

**(b)** Explain why some long-chain alkanes need to undergo cracking.

**3.** Crude oil is made up of different fractions. Some of these fractions contain large chain hydrocarbons that may not be useful as fuels.

Cracking is the process used to produce smaller, more useful hydrocarbons. Give a detailed account of the process of cracking. In your answer you should:

• describe the process of cracking, stating the conditions required

• explain why the large chain fractions may **not** be useful as fuels

• by using hexane as an example, identify the products that would form in cracking, and explain why they

form by referring to their chemical structures

• give ONE use for each of the products that form.

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